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EXAMINER	
BUTLER, DENNIS	

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,480	ALTMEJD, MORRIE	
	Examiner	Art Unit	
	Dennis M. Butler	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-9 and 14-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-9 and 14-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This action is in response to the amendment received on February 28, 2005. Claims 1, 4-9 and 14-35 are pending. Claims 26-35 have been added.

2. Applicant has submitted two claims labeled as "28". The second claim 28 has been renumbered as claim 29 and submitted claims 29-34 have been renumbered as claims 30-35 respectively. Applicant must refer to the claims using the renumbered claim numbers.

3. The text of those sections of Title 35, US Code not included in this action can be found in a prior Office Action.

4. Claims 1, 4-9, 14-18 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikinis, U. S. Patent 5,502,838.

Per claim 1:

A) Kikinis teaches the following claimed items:

1. taking a temperature reading in connection with the computer with Measure T 105 of figure 6 and at column 5, line 64 – column 6, line 1;

2. determining a desired operating temperature with Set T_{TH} 103 of figure 6, at column 4, lines 33-39 and at column 5, lines 64-66;

3. comparing the temperature reading and the desired operating temperature to determine a temperature difference with element 109 of figure 6, at column 4, lines 40-53 and at column 6, lines 1-13;

4. determining a user activity indication based on the temperature difference is inherently performed when comparing the temperature reading to the threshold temperatures as described at column 4, lines 40-53 because the temperature

reading of the processor is directly related to processor activity which indicates user activity as described at column 1, lines 14-20 and 55-63 and at column 2, lines 12-28.

B) The claims differ from Kikinis in that Kikinis fails to explicitly teach that the temperature difference is the temperature reading (T) from the desired operating temperature (T_{TH}) as claimed.

C) However, Kikinis describes comparing the temperature reading and the desired operating temperature to determine a temperature difference with element 109 of figure 6, at column 4, lines 40-53 and at column 6, lines 1-13. Kikinis describes determining a user activity indication based on the difference value $T-T_{TH}$ as described above. Kikinis describes indicating increasing activity based on a positive difference and indicating decreasing activity based on a negative difference. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made that the activity indications could have just as well been based on difference values obtained using $T_{TH} - T$. Therefore, the positive and negative difference values are merely values based on the same T and T_{TH} values taught by Kikinis but change the order of the values in the difference computation. Such a change puts form over substance, lacks an inventive step and would have clearly been obvious to anyone of ordinary skill in the art.

Per claims 4 and 7:

Kikinis describes comparing the temperature reading to threshold temperatures as described at column 4, lines 40-53. The temperature reading of the processor is directly related to processor activity because the more active a processor is, the more power the processor consumes and the temperature output of the processor is directly related to the power consumed by the processor. Therefore, a temperature reading that has risen to exceed the desired (threshold) temperature clearly indicates increased user activity and a temperature reading that has dropped below the desired temperature clearly indicates decreased user activity. Kikinis describes adjusting a clock signal as a function of the temperature difference at column 2, lines 25-33 and at column 5, lines 59-63. Kikinis describes adjusting a voltage applied to the processor at column 6, lines 10-13. It would be obvious to make these adjustments in frequency and voltage based on the temperature difference T_{TH} –T rather than using the difference T- T_{TH} for the same reasons as described above in connection to claim 1.

Per claims 5-6, 8-9 and 14-18:

Kikinis describes the steps recited in claims 1, 4 and 7 as described above. Kikinis does not explicitly describe changing the voltage and frequency based on the recited positive and negative difference values. Kikinis describes changing the voltage and frequency based on the difference value T- T_{TH} as described above. Kikinis describes decreasing the frequency and voltage based on a positive difference and increasing the frequency and voltage based on a negative difference. However, it would have been obvious to one having ordinary skill in

the art at the time the invention was made that the voltage and frequency adjustments could have just as well been based on difference values obtained using T_{TH} –T. Therefore, the recited positive and negative difference values are merely values based on the same T and T_{TH} values taught by Kikinis but change the order of the values in the difference computation. Such a change puts form over substance, lacks an inventive step and would have clearly been obvious to anyone of ordinary skill in the art. Regarding claim 14, this claim is similar is scope and content as claims 5 and 8 in that increasing the frequency and voltage increases a performance state of the processor. Therefore, claim 14 is rejected for the same reasons as claims 1, 4, 5, 7 and 8. Regarding claim 15, this claim is similar is scope and content as claim 5 and is rejected for the same reasons as claim 5. Regarding claim 16, this claim is similar is scope and content as claim 8 and is rejected for the same reasons as claim 8. Regarding claim 17, this claim is similar is scope and content as claim 6 and is rejected for the same reasons as claim 6. Regarding claim 18, this claim is similar is scope and content as claim 9 and is rejected for the same reasons as claim 9.

Per claim 21:

A) Kikinis teaches the following claimed items:

1. a processor device having a clock input to receive a clock signal with figures 1 through 3;

2. a temperature measurement device taking a temperature reading in connection with the computer with figure 3, with Measure T 105 of figure 6 and at column 5, line 64 – column 6, line 1;

3. control logic responsive to the temperature measurement device comparing the temperature reading and the desired operating temperature to determine a temperature difference, with Clock Control Logic 41 of figure 3, with element 109 of figure 6, at column 4, lines 40-53 and at column 6, lines 1-13;

4. adjusting the frequency applied to a processor based on the temperature difference at column 2, lines 25-33 and at column 5, lines 59-63.

B) The claims differ from Kikinis in that Kikinis fails to explicitly teach allowing a user to select between a manual clock speed mode and an automatic clock speed mode and that the temperature difference is the temperature reading (T) from the desired operating temperature (T_{TH}) as claimed.

C) Regarding allowing a user to select between a manual clock speed mode and an automatic clock speed mode, Kikinis describes allowing the user to set the threshold temperature (desired operating temperature) by programming this value into the computer at column 5, lines 64-66. Therefore, if a user wants to disable the automatic clock speed mode, the user can set all of the threshold temperatures to the maximum operating temperature of the processor. Furthermore, it is well known in the power control and timing arts to allow a user to disable automatic systems or to set automatic system parameters so that the automatic system features do not operate under normal operating conditions so

that they will not interfere with tasks such as downloading, copying, audio and video tasks. It would have been obvious to one having ordinary skill in the art at the time the invention was made to allowing a user to select between a manual clock speed mode and an automatic clock speed mode, as suggested by Kikinis, in order to increase the flexibility of the system and allow the user to disable the automatic features if they interfere with the performance of tasks such as downloading, copying, audio and video tasks. Regarding the temperature difference is the temperature reading (T) from the desired operating temperature (T_{TH}), this limitation is similar in scope and content to claims 1 and 4-6 and is obvious for the same reasons as described above in connection to these claims.

Per claim 22:

Kikinis does not explicitly describe taking an average of a plurality of temperature measures as claimed. However, it would have been obvious for one of ordinary skill in the art to take an average of a plurality of temperature measures in order to base the temperature difference comparison on the average temperature difference. This would allow for a smoother series of adjustments in the processor clock frequency and avoid sudden spikes in the temperature measurements and frequency adjustments.

5. Claims 19-20 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikinis, U. S. Patent 5,502,838 in view of Atkinson, U.S. Patent 6,336,080.

Per claims 19-20 and 23-25:

Kikinis fails to teach the elements recited in claims 19-20 and 23-25 including using a lookup table and computing the desired operating temperature. Atkinson teaches that it is known to use a lookup table and computing the desired operating temperature as claimed with figures 4, 6 and 7, at column 3, lines 13-19 and at column 4, lines 37-52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a lookup table and computing the desired operating temperature, as taught by Atkinson, in order to quickly determine and change the desired operating temperature. One of ordinary skill in the art would have been motivated to combine Kikinis and Atkinson because of Kikinis suggestion of allowing a user to programmably set the desired operating (threshold) temperature at column 5, lines 64-66. It would have been obvious for one of ordinary skill in the art to combine Kikinis and Atkinson because they are both directed to the problem of adjusting the processor clock frequency based on a temperature reading of the processor and a desired threshold temperature.

6. Claims 26-27 and 29-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas et al., U.S. Patent 5,752,011.

Per claims 26 and 33:

A) Thomas et al teach the following claimed items:

1. determining user activity for a processor based at least in part on a measured temperature that corresponds to the processor with activity detector 68 and temperature sensor 4 of figure 10, with table I in column 9, at column 2, lines

49-54 and at column 9, lines 27-67 wherein the temperature sensor input signal corresponds to whether there has been prolonged user activity;

2. adjusting performance of the processor in accordance with the determined user activity with adjusting the output clock using Selector 66 of figure 10 and at column 9, line 4 – column 10, line 6.

Per claims 27, 29-32:

Thomas describes comparing the measured temperature against a desired operating temperature at column 3, lines 5-7. Thomas describes indicating increased and decreased activity and adjusting performance and clock frequency as recited in claims 29-32 at column 9, lines 16-67.

7. Claims 26-28, 30 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikinis, U.S. Patent 5,502,838.

Per claims 26-28, 30 and 33:

A) Kikinis teaches the following claimed items:

1. determining user activity for a processor based at least in part on a measured temperature that corresponds to the processor with comparing the temperature reading to the threshold temperatures in figures 3 and 6 and as described at column 4, lines 40-53 and at column 6, lines 1-13 because the temperature reading of the processor is directly related to processor activity which indicates user activity as described at column 1, lines 14-20 and 55-63 and at column 2, lines 12-28;

2. adjusting performance of the processor in accordance with the determined user activity with adjusting the frequency applied to a processor based on the temperature difference at column 2, lines 25-33 and at column 5, lines 59-63.

8. Claims 34-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Atkinson, U.S. Patent 6,336,080.

Per claim 34:

A) Atkinson teaches the following claimed items:

1. a processor with CPU 12 of figure 1;

2. a temperature sensor that measures temperature corresponding to the processor with Thermistor 16 of figure 1 and with figure 7;

3. a store unit storing desired operating temperatures with the look-up table of figure 7, with element 56 of figure 2, at column 4, lines 37-52 and at column 5, lines 31-38;

4. means for increasing the performance of the processor if a measured temperature exceeds a desired operating temperature stored in the store unit with Fan 18 of figure 1, with the look-up table of figure 7, and at column 7, lines 12-15.

Per claim 35:

Atkinson describes periodically activating (polling) the temperature sensor to measure temperature at column 4, lines 42-44.

9. Applicant's arguments filed on February 28, 2005 have been fully considered but they are not persuasive.

In the Remarks, applicant has argued in substance that:

A. Kikinis does not disclose or suggest adjusting processor performance in accordance with detected user activity.

B. Kikinis does not disclose or suggest any of Applicants claims, especially independent claims 14 and 15 and dependent claims 5, 6, 8, 9, 16, 17 and 18.

C. Kikinis does not disclose or suggest determining user activity and the assertion of inherency is inappropriate.

D. The obviousness rejection of claim 21 is inappropriate.

10. As to point A, applicant failed to point out which claim this argument was directed to. The examiner believes this argument is directed to new claim 26 because this is the only claim that recites this limitation. Regarding claim 21, the examiner cannot and is not required to anticipate new limitations in new claims. Thomas teaches this limitation as described in the above rejection.

As to point B, Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out **how the language of the claims patentably distinguishes them from the references**. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks **the claims present** in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

As to point C, the examiner disagrees with applicant's contention. Kikinis inherently determines a user activity indication based on the temperature difference because the temperature reading of the processor is directly related to processor activity which indicates user activity as described at column 1, lines 14-20 and 55-63 and at column 2, lines 12-28. Kikinis describes that heat is generated by a large number of transistors switching at high frequency and high frequency switching is a major factor in the generation of heat at column 1, lines 14-20. This heat generation caused by high frequency switching is clearly an indication of user activity. Kikinis describes that functional units in a microprocessor are not used equally. Math-intensive applications use the computational functional units, some applications are more memory intensive and others use logic units to a greater extent at column 1, lines 55-63. Therefore, detection of the temperatures of the various functional units in a microprocessor allow for the indication of the type of user activity a microprocessor is being used for. Kikinis describes detecting the temperatures of multiple functional units in a microprocessor and adjusting the clock rate of each functional unit based on the temperature of the functional unit at column 2, lines 25-28. The temperature difference described by Kikinis is clearly an indication of user activity. Applicant seems to argue that the skill level of one of ordinary skill in the art is such that one of ordinary skill in the processor power/temperature control art does not know that the measured temperature of a processor or functional units in a processor is an indication of user activity even in view of Kikinis's disclosure that that heat is generated by a large number of transistors switching at high frequency, high frequency switching is a major factor in the generation

of heat, functional units in a microprocessor are not used equally, math-intensive applications use the computational functional units, some applications are more memory intensive and others use logic units to a greater extent. The examiner disagrees with applicant's assessment of the skill level of one of ordinary skill in the processor power/temperature control art. It is well known by one of ordinary skill in the processor power/temperature control art that measured temperature of a processor or functional units in a processor is an indication of user activity. Furthermore, it would have been obvious to one of ordinary skill in the processor power/temperature control art that the measured temperature (T) of a processor or the functional units in a processor is an indication of user activity in view of the teachings and suggestions of Kikinis.

As to point D, the examiner disagrees with applicant's contention. The rejection of claim 21 is appropriate and proper. In response to applicant's argument that there is no suggestion to modify the reference, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Kikinis provides ample motivation and suggestion for one of ordinary skill in the processor power/temperature control art to disable the automatic mode of operation by teaching that the threshold temperature can be programmably set

by the user to a desired temperature setting. In addition, the knowledge generally available to one of ordinary skill in the art would allow a user to disable automatic systems or to set automatic system parameters so that the automatic system features do not operate under normal operating conditions so that they will not interfere with tasks such as downloading, copying, audio and video tasks. Furthermore, one of ordinary skill in the art would be motivated to allow a user to disable the automatic mode of operation would increase the flexibility of the system by allowing the user to disable the automatic features if they interfere with the performance of tasks such as downloading, copying, audio and video tasks.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis M. Butler whose telephone number is 571-272-3663. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis M. Butler
Primary Examiner
Art Unit 2115